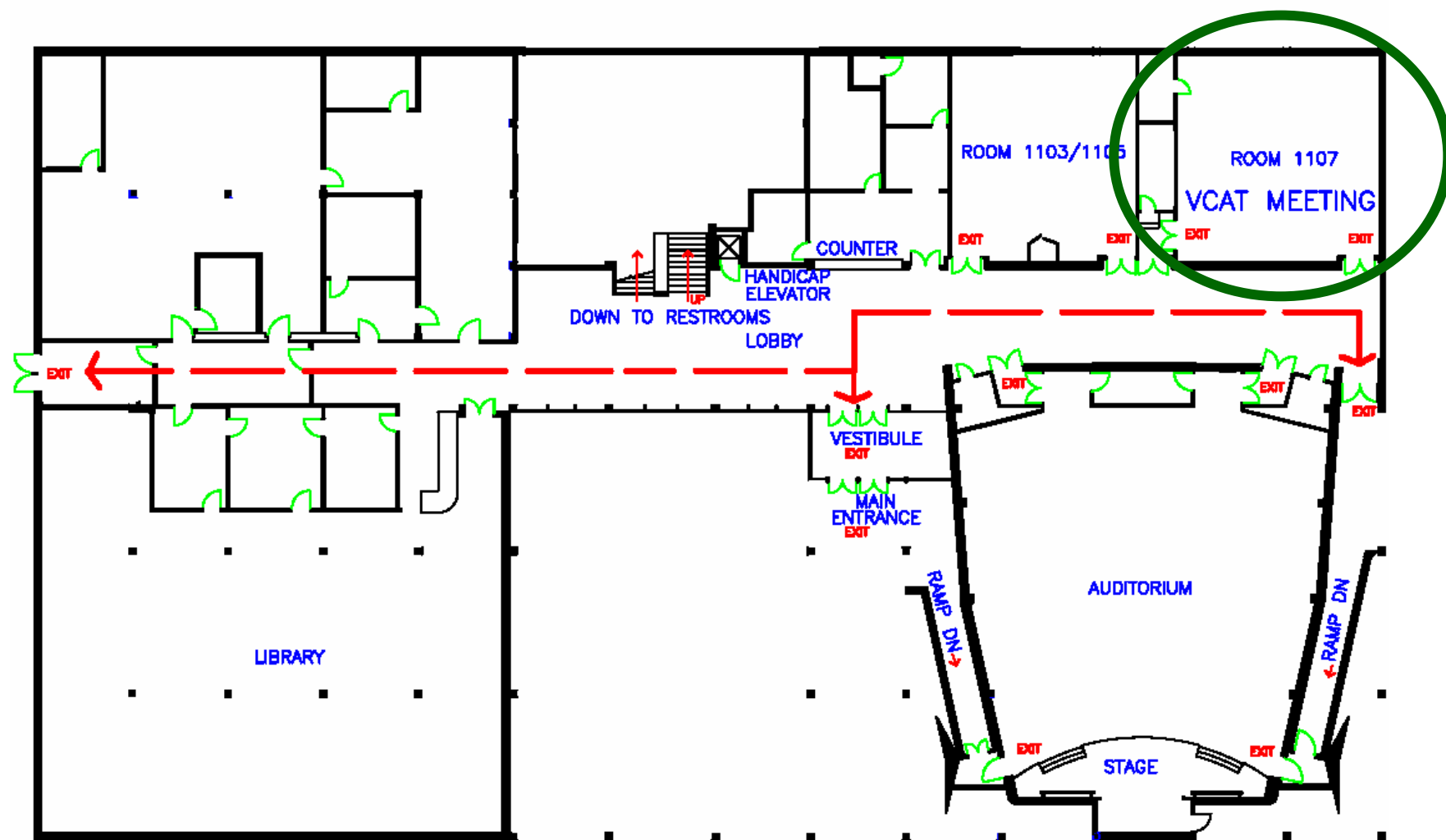


# Emergency Exits



# NIST Update

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**William Jeffrey**  
Director, NIST

Visiting Committee on Advanced Technology  
December 13, 2005

# Outline of VCAT Agenda

## December 13-14, 2005

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- NIST Update
- NIST Strategic Planning and Priority-Setting Process
  - Overview
  - EEEL
  - PL
- Laboratory Tours
  - High-Speed Optical Detectors for Quantum Encryption/Information
  - Alternative Refrigerants and the Hydrogen Economy
  - Optical Atomic Clocks
- USMS
- NIST Awards Recognition
- VCAT Panel- Best Practices for Strategic Planning

# NIST Update

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- New Happenings at NIST
  - NIST in the press
  - Staff changes
  - Recognition
  - Highlights
- VCAT
  - Status of recommendations
  - Approach

NOVEMBER 7, 2005

# Puzzler

by John Greenman

## Still iding"

40 The \_\_\_\_ of the Affair

41 National Institute of  
Standards and  
Technology formerly  
known as \_\_\_\_ (abbr.)

5

- 21 "Owner of a Lonely Heart" rock group
- 23 \_\_\_\_ Prizm
- 24 \_\_\_\_ Young to Die (Brad Pitt TV movie)
- 27 Let's Make a \_\_\_\_
- 29 "Crocodile \_\_\_\_" (15 Across hit)

The same, for people  
Berlin

- 13 Vegetarian gelatin
- 14 Basketball movie  
The \_\_\_\_ in There
- 15 Grammy-winning  
singer-songwriter  
(2 wds.)
- 17 Tiny fish
- 18 Farm-gear pioneer  
John \_\_\_\_
- 19 Monster-\_\_\_\_ (Jane  
Fonda-Jennifer Lopez  
comedy)

- 33 15 Across's "Candle  
in the \_\_\_\_ 1997"  
(tribute to Princess  
Diana)
- 35 Netherlands town
- 36 Jai-\_\_\_\_
- 37 Butter wannabe
- 38 Goodbye Yellow Brick  
\_\_\_\_ (No. 1 album for  
15 Across)
- 40 The \_\_\_\_ of the Affair
- 41 National Institute of  
Standards and  
Technology formerly  
known as \_\_\_\_ (abbr.)



- 43 Macaulay Culkin, to pals
- 45 Emulate Michelle Kwan
- 48 Burt Lancaster movie  
\_\_\_\_ Hero
- 52 "Honky \_\_\_\_" (15  
Across hit pop song)
- 53 Must Love Dogs star  
(2 wds.)

- 8 Gov. Schwarzenegger
- 9 David Hasselhoff action  
comedy \_\_\_\_ Out
- 10 Tony Award-winning  
musical by 15 Across  
and Tim Rice
- 11 Fever Pitch star  
Barrymore

- 39 Cowgirl Evans
- 42 \_\_\_\_ Roses (Christian  
Slater drama; 2 wds.)
- 44 Soft drinks
- 45 Sean Connery, for one
- 46 Orson Welles starred  
in Citizen \_\_\_\_
- 47 Put \_\_\_\_ in the water

BABY

Britney  
Spears  
1 Month  
After!

SLIMDOWNS

JENNIFER  
with Vince



# DOC Staff Changes

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**Michelle O'Neill** has left the Technology Administration to become the new Deputy Under Secretary for the International Trade Administration.



**William Jeffrey** has assumed the additional responsibilities of the Acting Under Secretary for Technology



**Robert Cresanti** has been nominated to become the new Under Secretary for Technology

# NIST Staff Changes

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**Shashi Phoha**, Director of the Information Technology Laboratory, is leaving NIST



**Cita Furlani** will become Acting Director of the Information Technology Laboratory



**Susannah Schiller** will become Acting Chief Information Officer



**Ellen Dowd**, Acting Chief Human Capital Officer, is retiring

# NIST Staff Changes

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**Verna Hines**, Director of Congressional and Legislative Affairs, is retiring



**Rich Kayser** is no longer in an acting position and is now Director of the Materials Science and Engineering Laboratory



**Roger Kilmer** is no longer in an acting position and is now Director of the Hollings Manufacturing Extension Partnership



# NIST Staff Changes

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**Dennis Swyt**, New Director of the  
U.S. Measurement System Project



**Bob Celotta**, New Director of the NIST  
Center for Nanoscale Science and  
Technology

# Staff Recognition

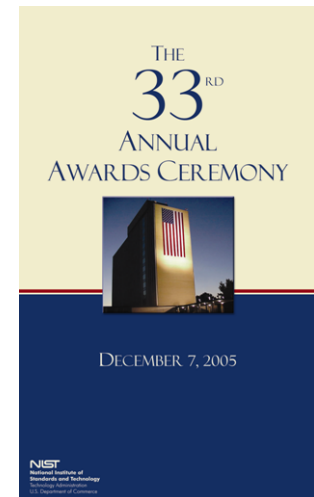
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**John L. (Jan) Hall**  
2005 Nobel Prize in Physics

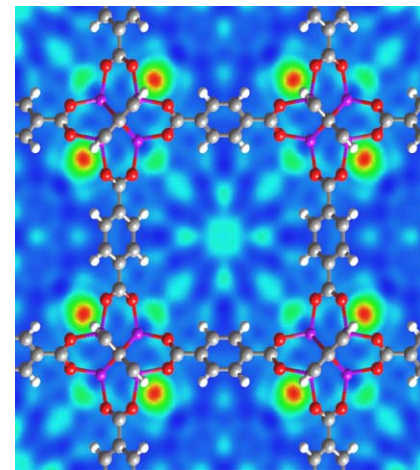
The Nobel Prize was awarded for contributions to the development of laser-based precision spectroscopy, including the optical frequency comb technique.

The VCAT is invited to attend  
the Boulder campus NIST  
Awards Ceremony



# Responding to National Priorities

- NIST researchers discover  $H_2$  bonding structure in metal organic frameworks that may lead to practical storage systems for automobiles and other applications



- NIST researchers identify lubricants that can improve heat transfer characteristics of alternative refrigerants, improving the energy efficiency of air-conditioning systems and potentially saving the equivalent of millions of barrels of oil per year



# Responding to National Priorities

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- NIST researchers have developed better measurements of seasonal storage changes in sulfur found in snow samples – important for understanding climate changes
- NIST facilitates the establishment of a new ASTM consensus standards activity for search and rescue robots





# Responding to National Priorities



## ➤ NIST to support Presidential initiative to develop a National Healthcare Information Network

MOU with HHS gives NIST a role in:

- Analyzing NHIN architectures
- Standards harmonization
- Security and privacy issues
- Testing and certification



# Responding to National Priorities

- NIST Responds to Hurricane Katrina
  - Leading three teams of government and private sector researchers to assess the performance of physical structures
  - Assistance to NOAA in cleaning oil spills
  - Chemical analysis of seafood samples
  - Hosting displaced researchers



# NIST Responds to Hurricane Katrina

COVER STORY

## STRANDED BY KATRINA

Foreign grad students and postdocs like those in the Rosenzweig group face extra challenges

**T**HE YOUNG GRADUATE students and postdocs in the groups of Zeev and Nitsa Rosenzweig, chemistry professors at the University of New Orleans, are a tidy, well-spoken bunch. Judging from their looks alone, you'd never guess that three months ago they were homeless, having lost most of their possessions, and that they might be deported.

With their projects destroyed and laboratories shuttered, all of the graduate students and postdocs displaced by Hurricane Katrina face an uncertain future. But the plight of international students seems particularly acute: They are thousands of miles from their families. Their only options for shelter are hotels and motels in unfamiliar cities where they know no one. The university sponsoring their stay in the U.S. is closed down.

"The feeling is really bad," says Vania De Paoli, a postdoc in the Rosenzweigs' lab, remembering those tenuous days after the levees in New Orleans broke. "Suddenly you wake up, and you don't have a place to live anymore, and you don't know where your friends are."

De Paoli and her labmates—graduate students Lifang Shi, Ying Long, Georgeta Crivat, and postdoc Silvia Lacerda—still seem a little numb when they recall the rushed and circuitous trip that took them from the University of New Orleans

settling in McLean, Va. The students, calling themselves, were "hungry, tired, and really in bad shape." None, however, considered packing up and heading home. "The feeling was that if we were all together, we would all be okay," Zeev says.

C. Squared provided the group with loaner instruments.

NIST has been particularly generous with the students, arranging fully furnished apartments for them within walking distance from the institute. Rental rates in Gaithersburg are considerably more than what the students were paying in New Orleans, so NIST also provided them with a housing subsidy.

Because they are foreign nationals, the women faced several unique obstacles. Their visa status was pegged to the University of New Orleans, and to ensure they weren't working illegally, NIST had to coordinate with the university. This was no small feat, as the university's international office had essentially become a fellow evacuee with a laptop in Rhode Island.

As international students, they were also warned about taking any money from the Federal Emergency Management Agency (FEMA). For non-U.S. citizens, the money is considered a loan, and any failure to pay it back could jeopardize their visa status or future attempts to get a green card. Without aid from FEMA, the Refugee Girls couldn't afford temporary housing. They squeezed into the Rosenzweigs' townhouse for three weeks until NIST sorted out their visas.

Over a lunch of Nitsa's homemade jambalaya, the group tells C&EN they are starting to rebuild. They've decided to start their projects from scratch, pooling their expertise in nanomaterials and biological systems with that of Locascio in microfluidics and Gaitan in nanofabrication.

"There is an array of tools here that it would be a crime not to use," Zeev says. "They



**MISSING NEW ORLEANS** Zeev and Nitsa Rosenzweig (standing at right) and their students (from left) Shi, De Paoli, Lacerda, Long, and Crivat are continuing their research thanks to NIST and NSF.

PHOTO BY PETER GUTER

# Changing the Focus of the VCAT Meetings

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- Review status of recommendations
- Our approach
- Refocusing our efforts

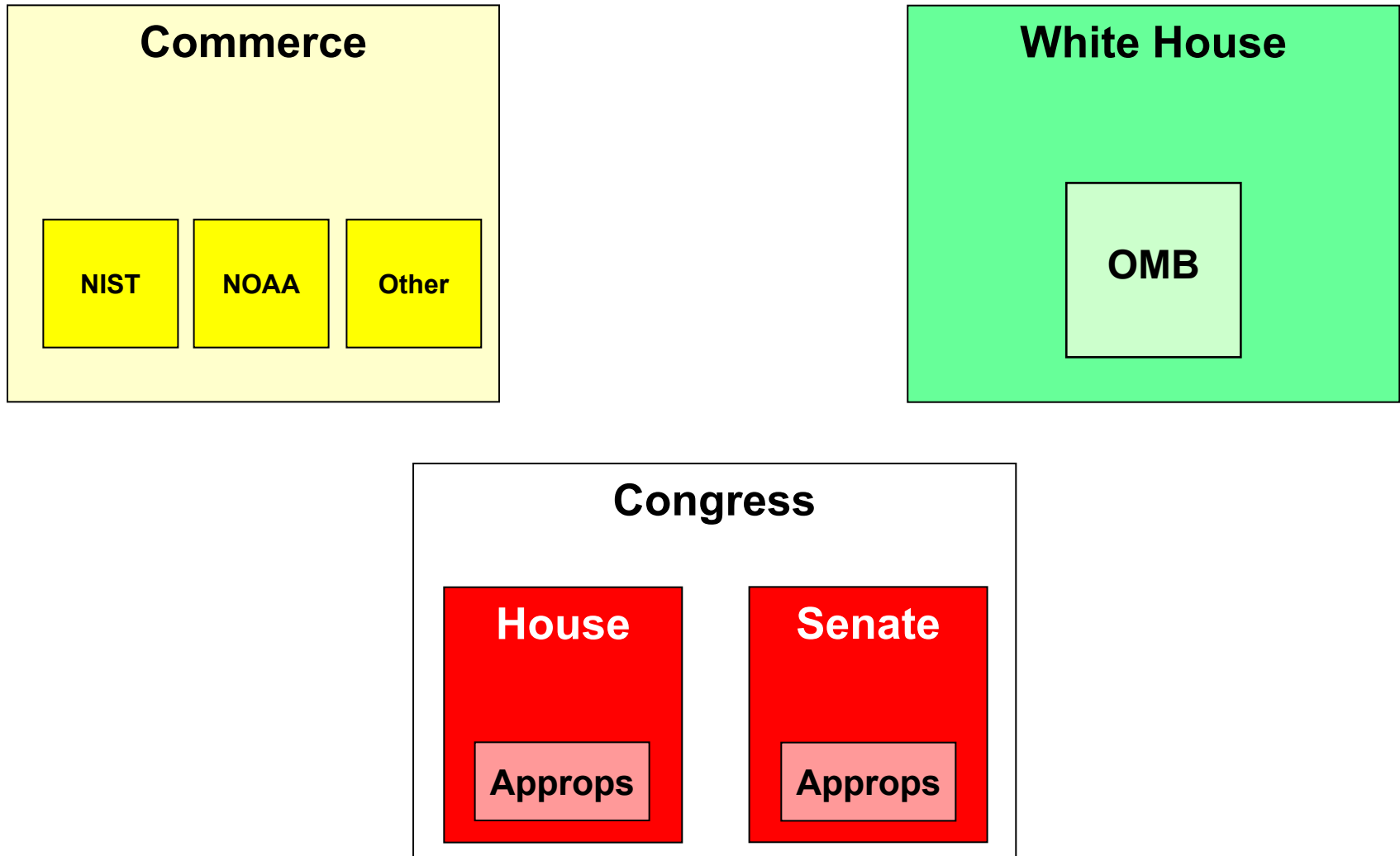
# Role of VCAT ... Where are we now?

## Status of Recommendations in FY 04 & FY 05 (Dec. 2003- September 2005)

Recommendations from VCAT Letter Report to NIST Director	NIST Response (Letter from NIST Director to VCAT Chair) and Other Status	STATUS
<b>BUDGET PRESENTATIONS</b>		
<p>06/04</p> <ul style="list-style-type: none"> <li>VCAT wants to see <b><u>budget trend data regularly</u></b>, in particular, other-agency funding for the NIST labs by program.</li> <li>VCAT wants to learn more about the <b><u>budget process</u></b>, reprogramming requirements and related structural conditions. FY 04 Annual Report</li> <li>Immediately increase NIST budget to fund strategic initiatives and to compensate for unfunded Congressional mandates, inadequate ATBs, and unfunded salary increases.</li> <li>Stabilize funding for MEP and ATP.</li> </ul>	<p>06/04</p> <ul style="list-style-type: none"> <li>NIST will provide these updates at the VCAT <b>quarterly</b> meetings.</li> <li>These topics will be part of the new VCAT member orientation.</li> </ul>	<p>Showed OA funding by program at 9/04 and 12/04 meetings.</p> <p><b>Completed</b> - Budget Primer distributed 3/05</p> <p><b>On-going</b> - FY 06 appropriation supports this objective while balancing other national priorities, including cutting the budget deficit.</p> <p><b>On-going</b> – FY 06 appropriation fully funded MEP and partially funded ATP.</p>

# The Budget Process

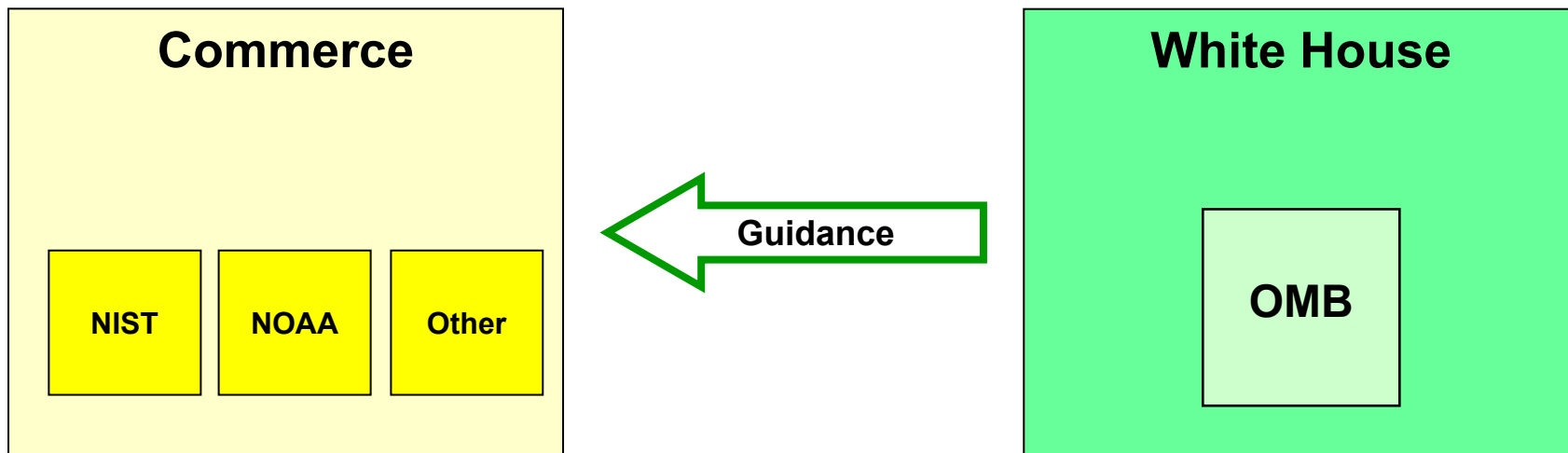
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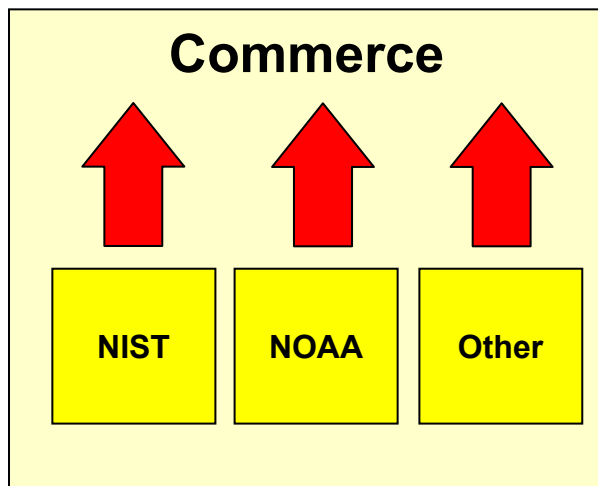
# The Budget Process

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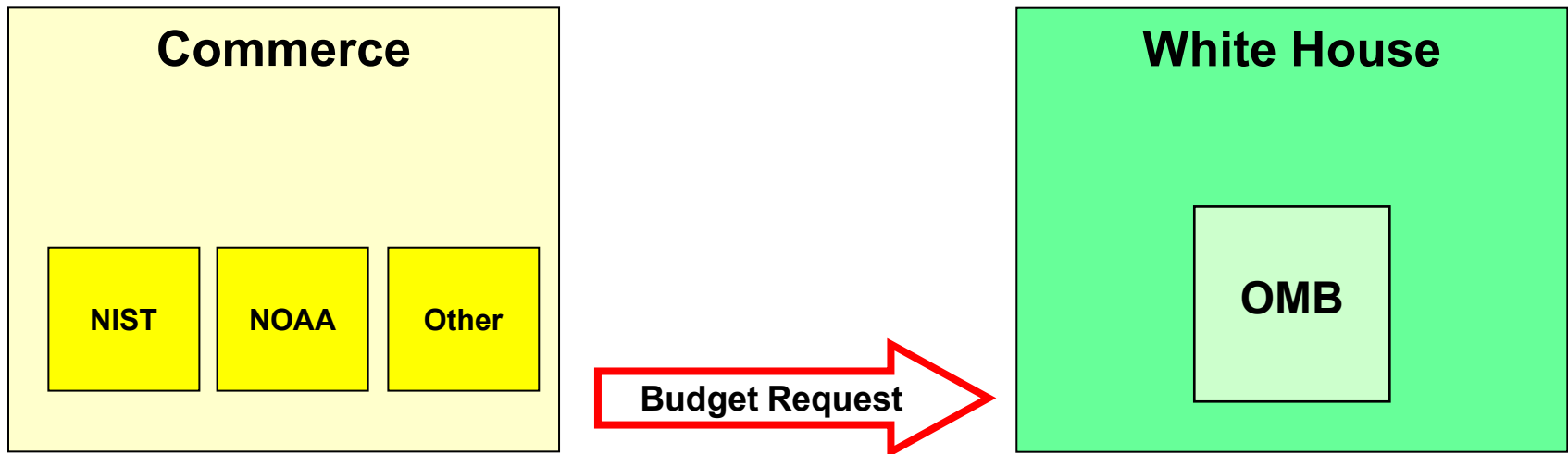
# The Budget Process

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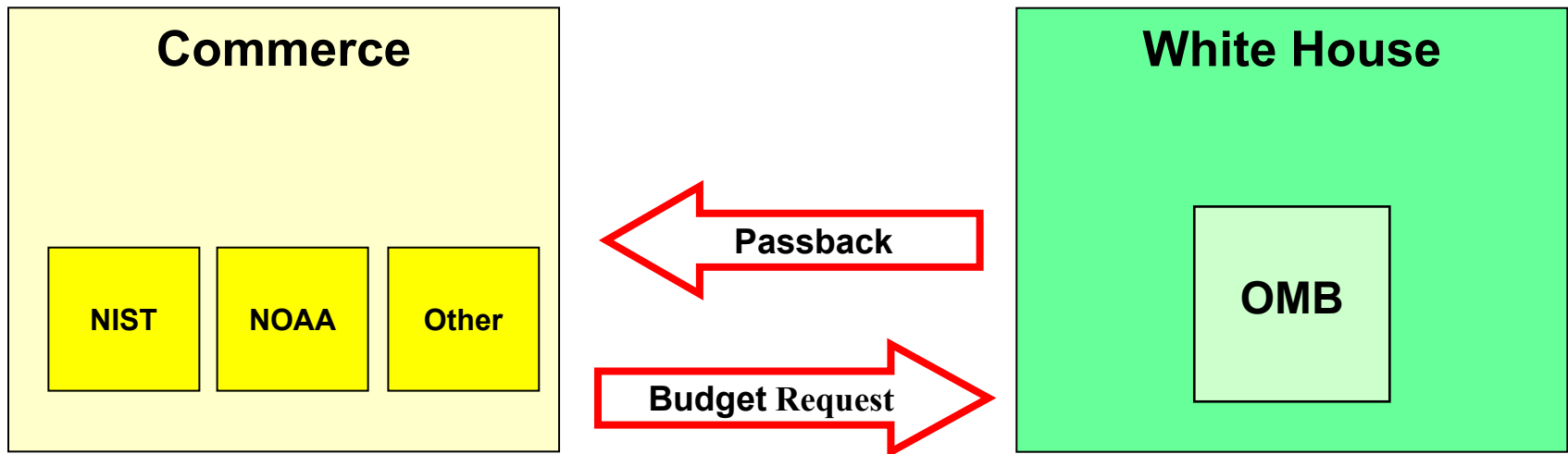
# The Budget Process

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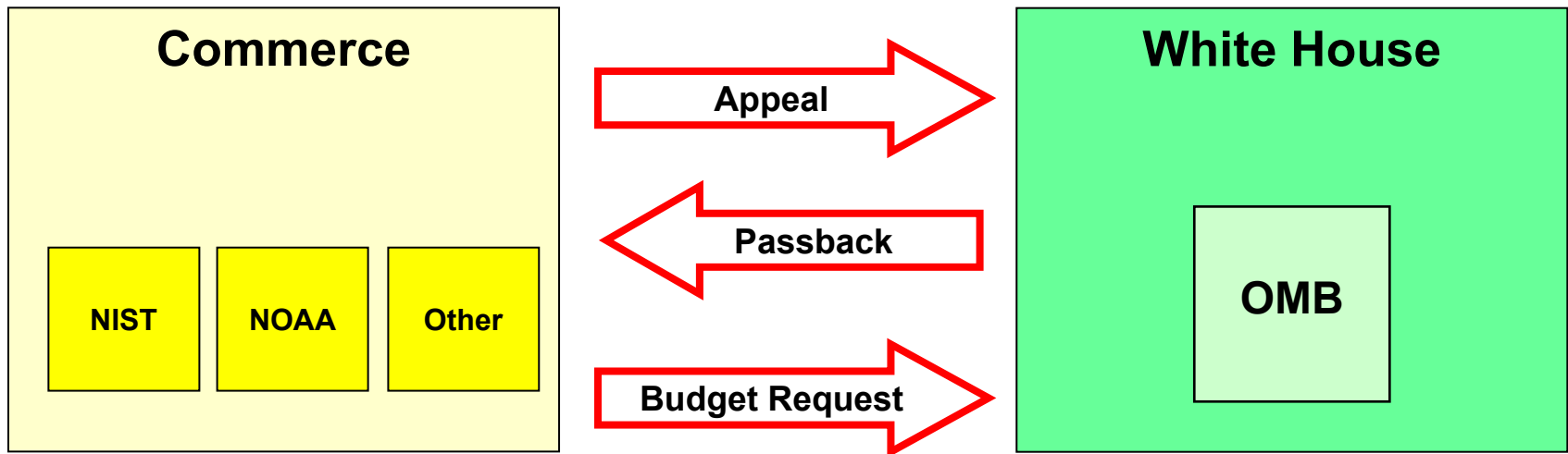
# The Budget Process

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# The Budget Process

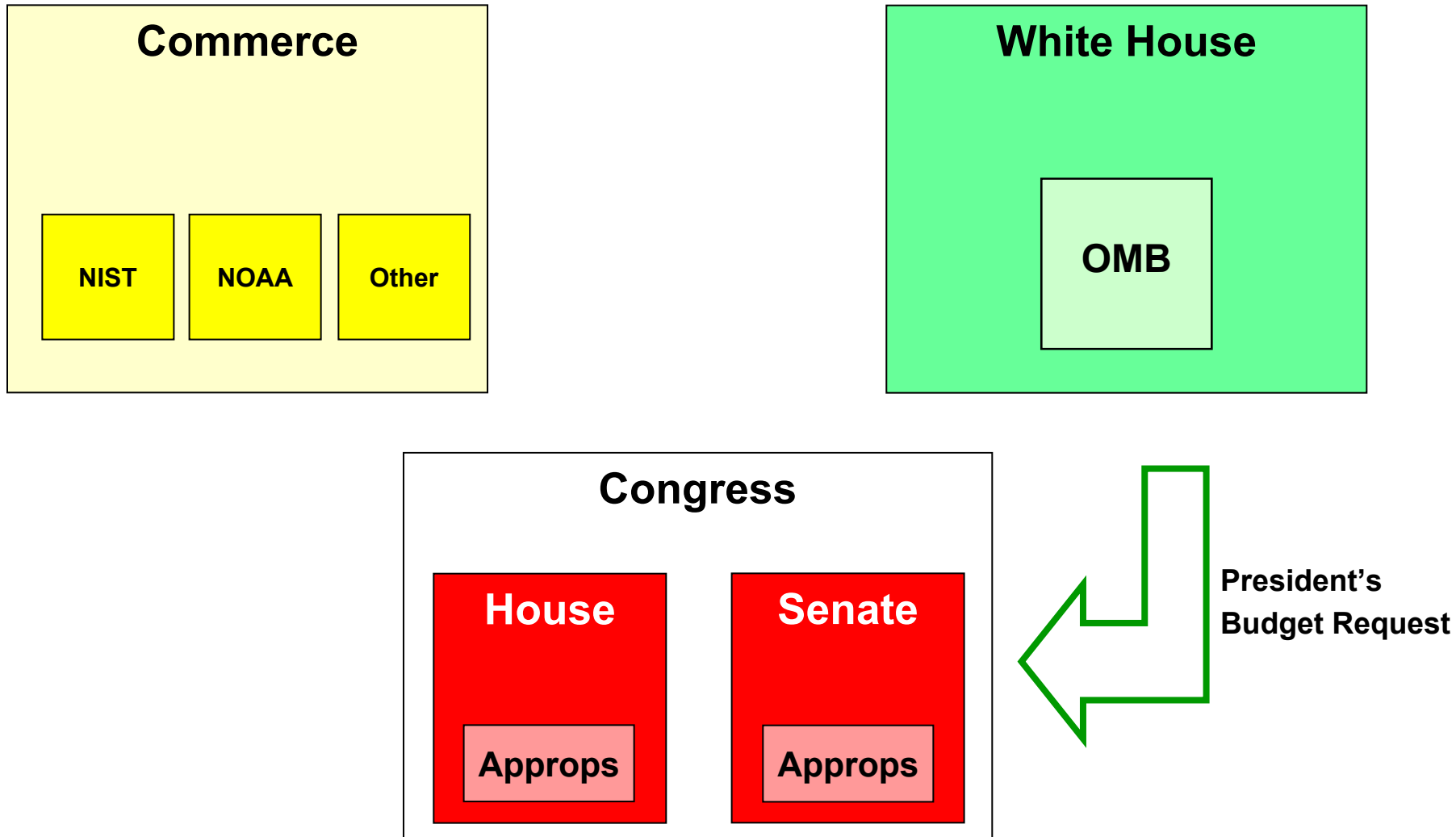
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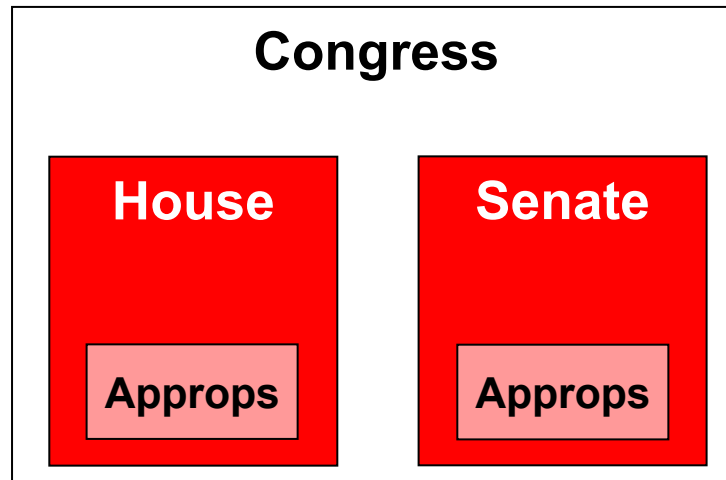
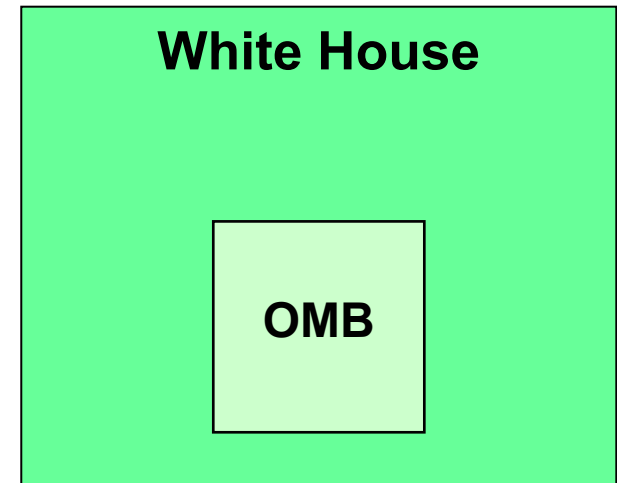
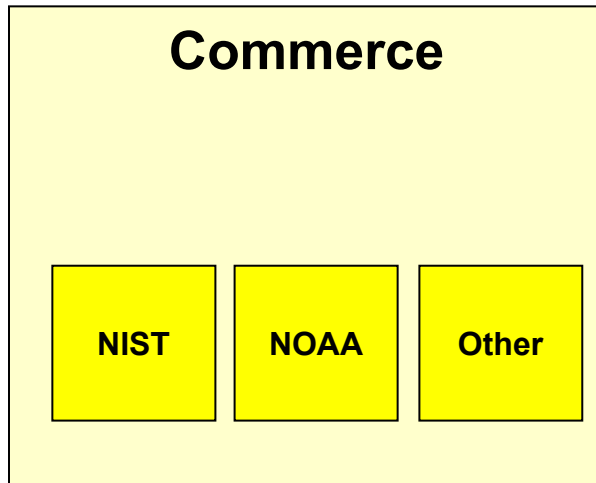
# The Budget Process

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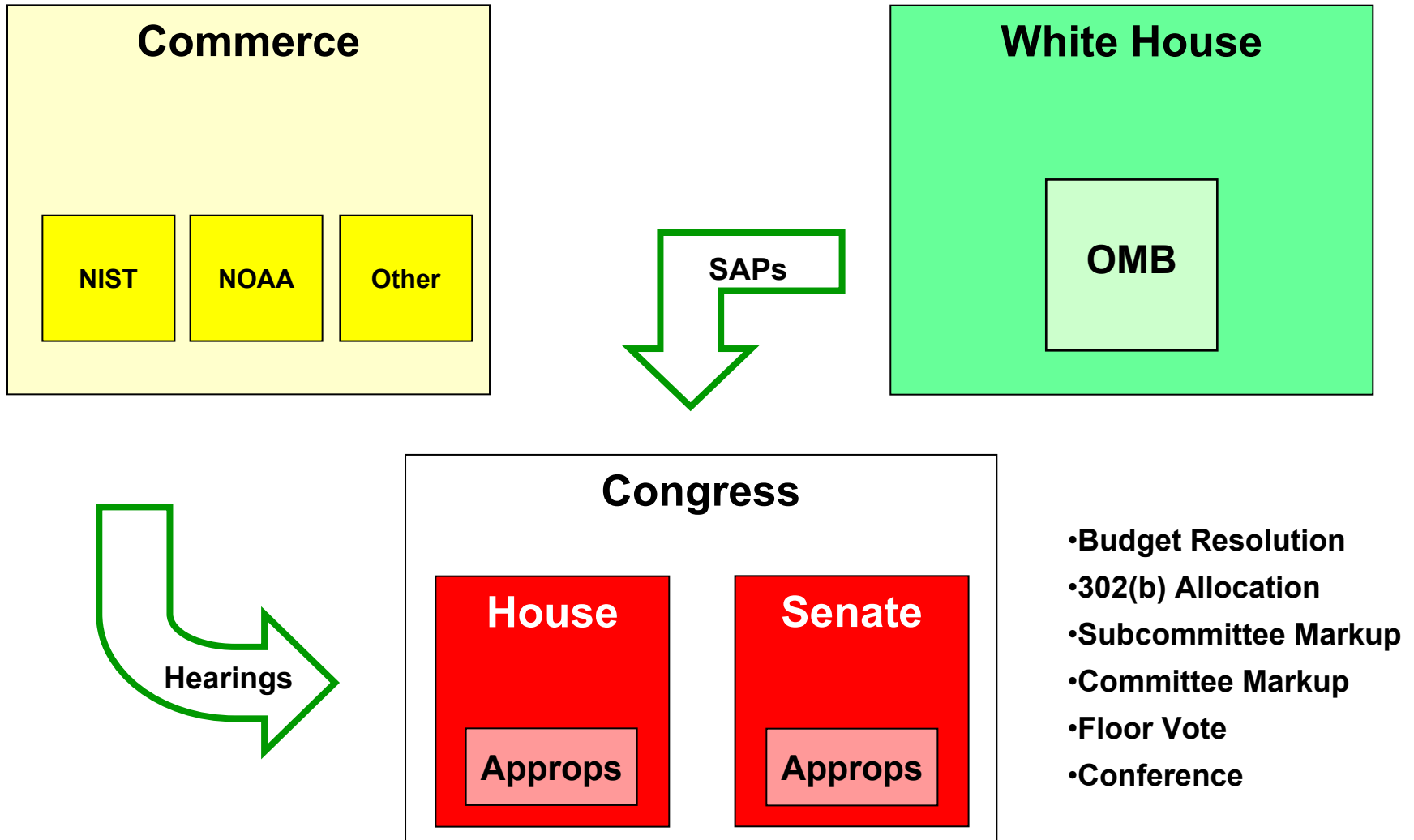
# The Budget Process

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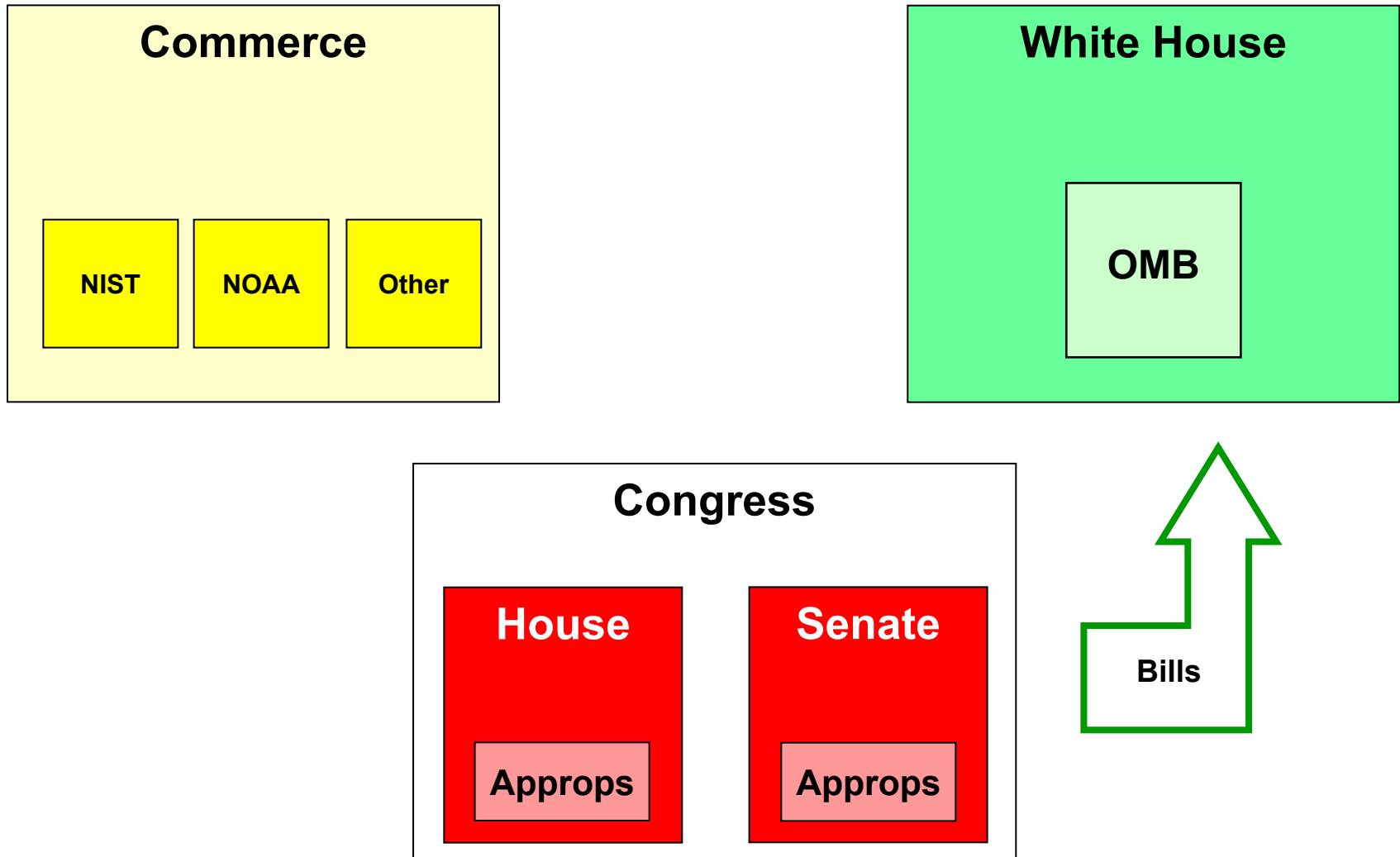
- Budget Resolution
- 302(b) Allocation
- Subcommittee Markup
- Committee Markup
- Floor Vote
- Conference

# The Budget Process



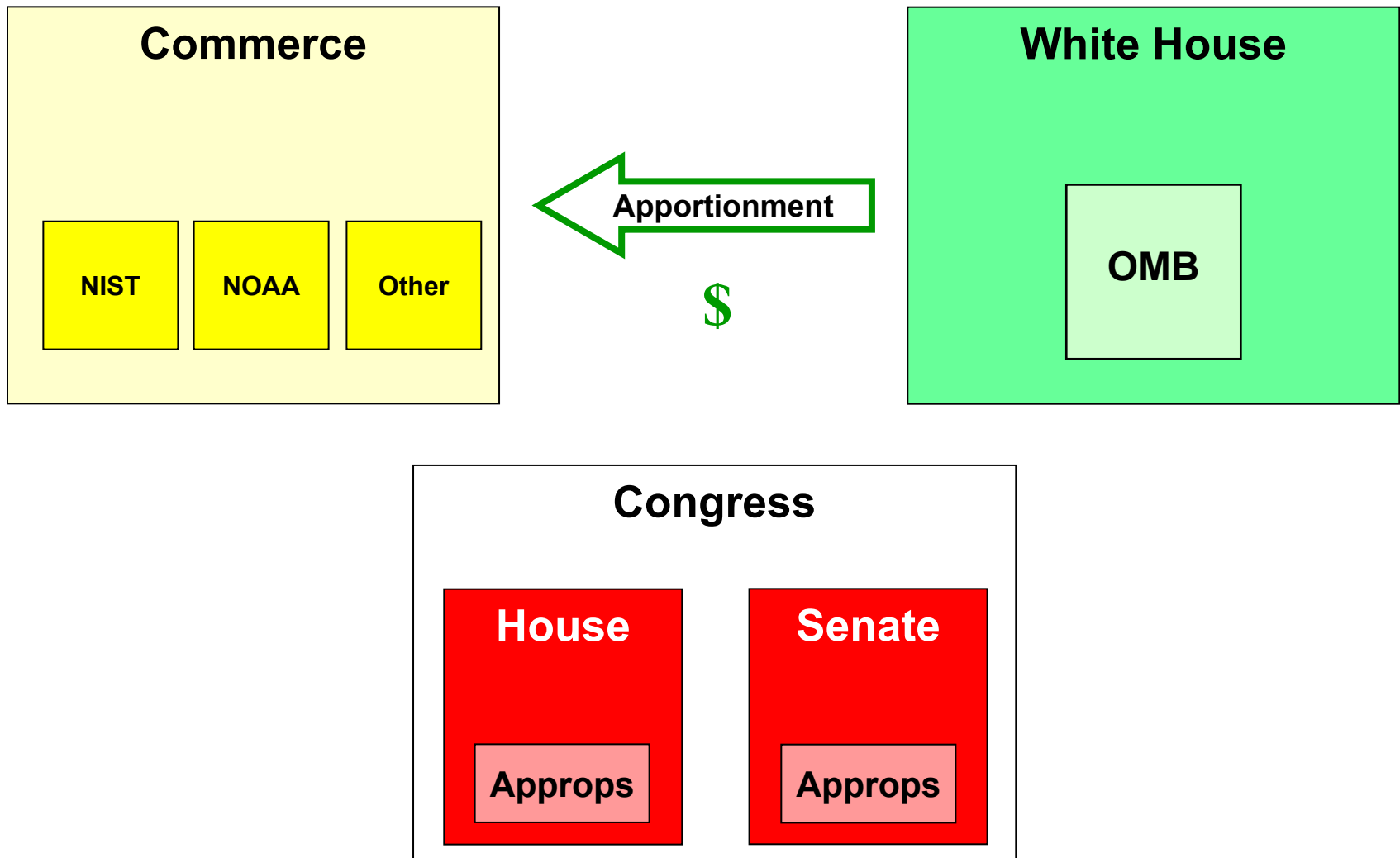
# The Budget Process

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# The Budget Process

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# The Budget Process

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
<b>Agency Budget Preparation</b>													FY - 2
Agencies prepare budget requests													
OMB reviews agencies programs and issues													
Agencies submit budget requests													
Presentations to OMB													
Presentations to OMB (cont'd.)													FY - 1
<b>OMB Budget Preparation</b>													
OMB "passback" presented to Agencies													
Appeals prepare and submit appeals to OMB													
OMB sends final allowances													
President's Request to Congress prepared													
Budget delivered to Congress													
<b>Congressional Hearings and Markups</b>													
Agencies brief congressional committee staff													
Markups and appeals													
<b>Congressional Appropriations</b>													
Conference committee resolves differences													
Appropriation bills signed by President...													
...Or continuing resolutions enacted...													FY

# NIST FY 2006 Budget (\$M)

## Appropriation:

### Scientific & Technical Research & Services (STRS):

FY 2005

FY 2006

Enacted

Enacted

NIST Laboratories

364.6

379.4

Baldrige National Quality Program

5.4

7.3

Directed Grants

8.8

12.0

### Subtotal, STRS

378.8

398.7

### Industrial Technology Services (ITS):

Advanced Technology Program

140.4

79.8

Hollings Manufacturing Ext. Partnership

107.5

105.7

### Subtotal, ITS

247.9

185.5

### Construction of Research Facilities (CRF):

Construction and Major Renovations

6.9

13.4

Modifications and Improvements

22.7

35.4

Directed Grants

42.9

126.6

### Subtotal, CRF

72.5

175.4

## Total

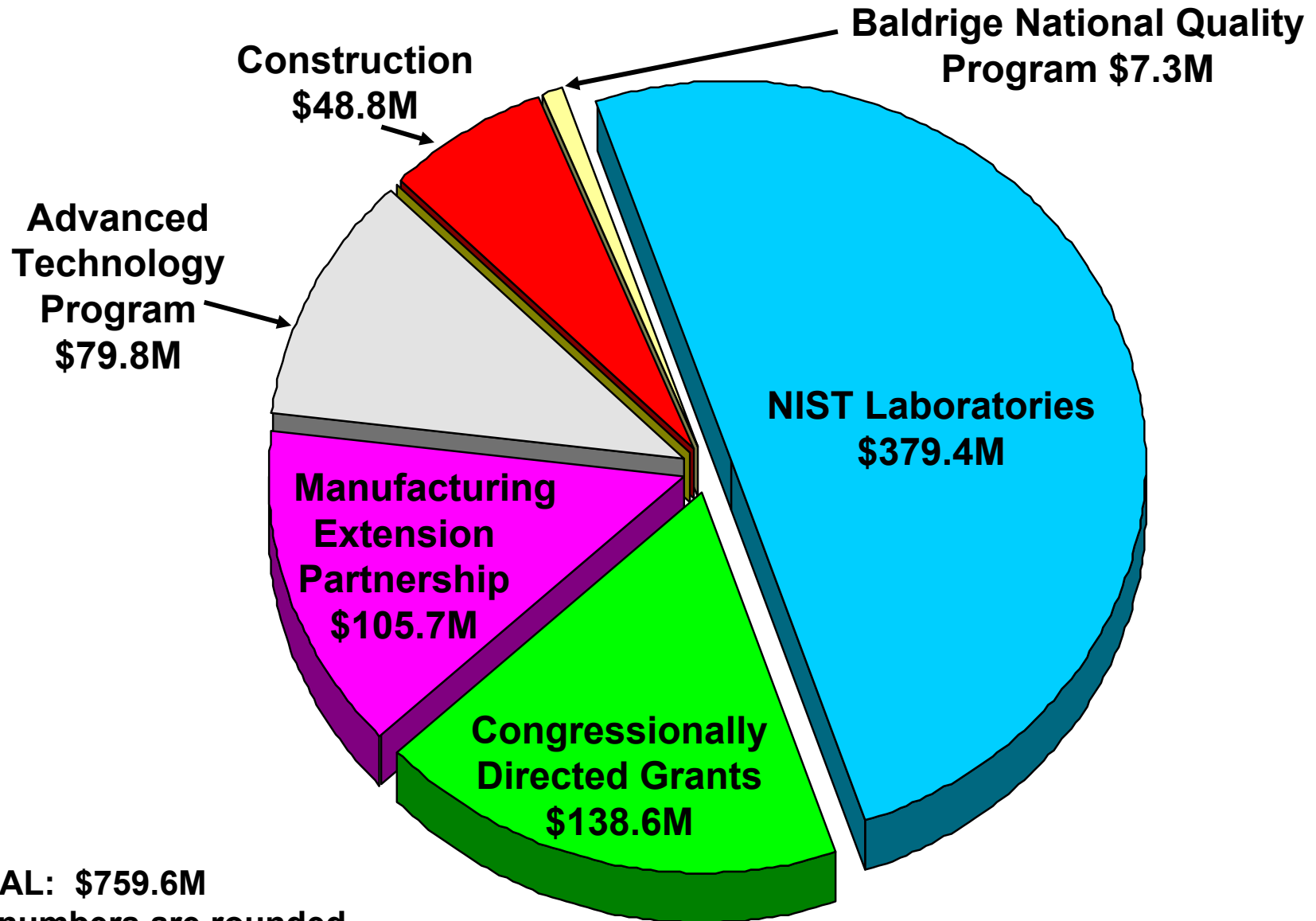
699.2

759.6

*FY 2005 amounts do not reflect rescissions of unobligated balances.*

# NIST FY2006 Budget Authority\*

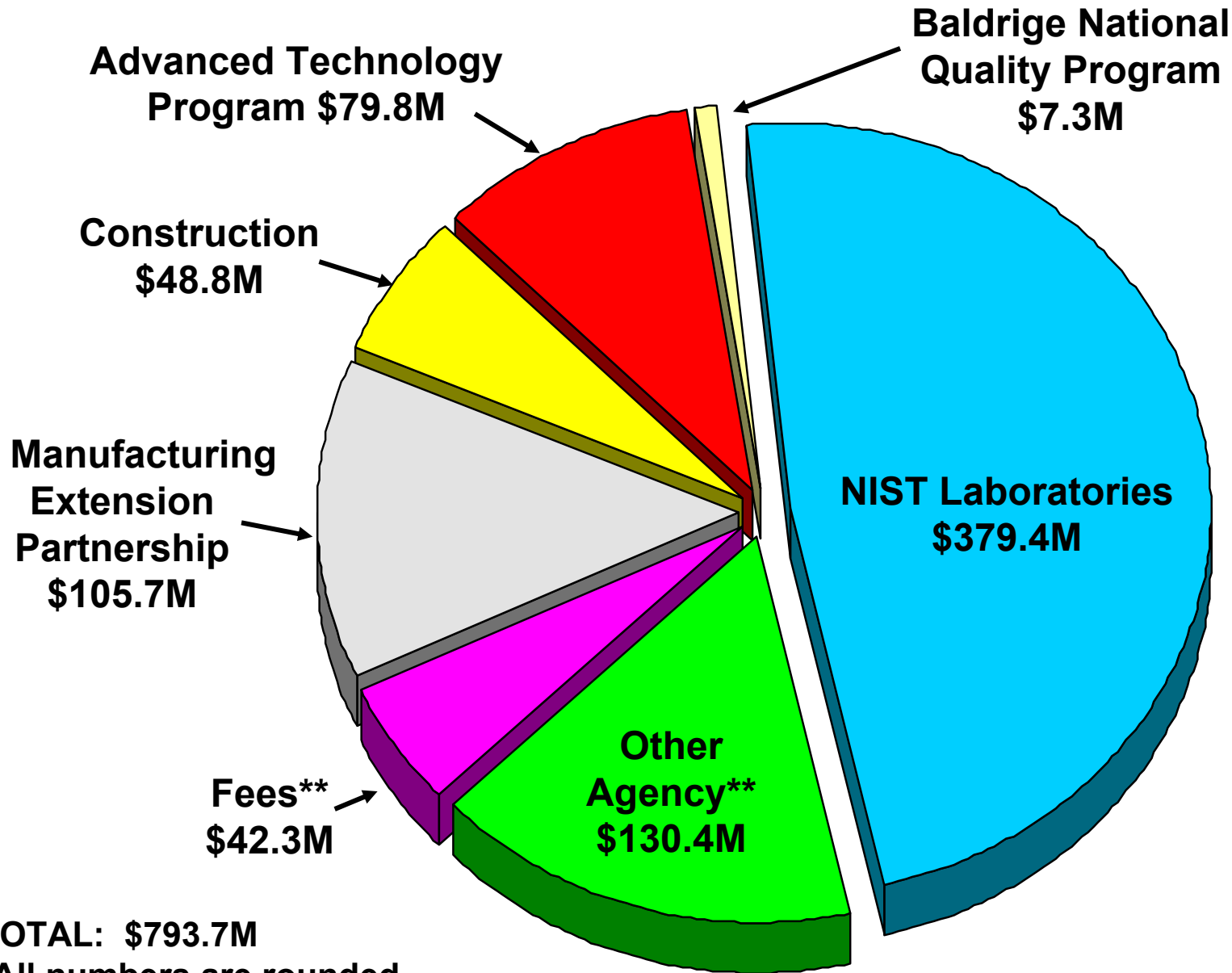
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**TOTAL: \$759.6M**

**\*All numbers are rounded**

# NIST FY2006 Resources\*



**TOTAL: \$793.7M**

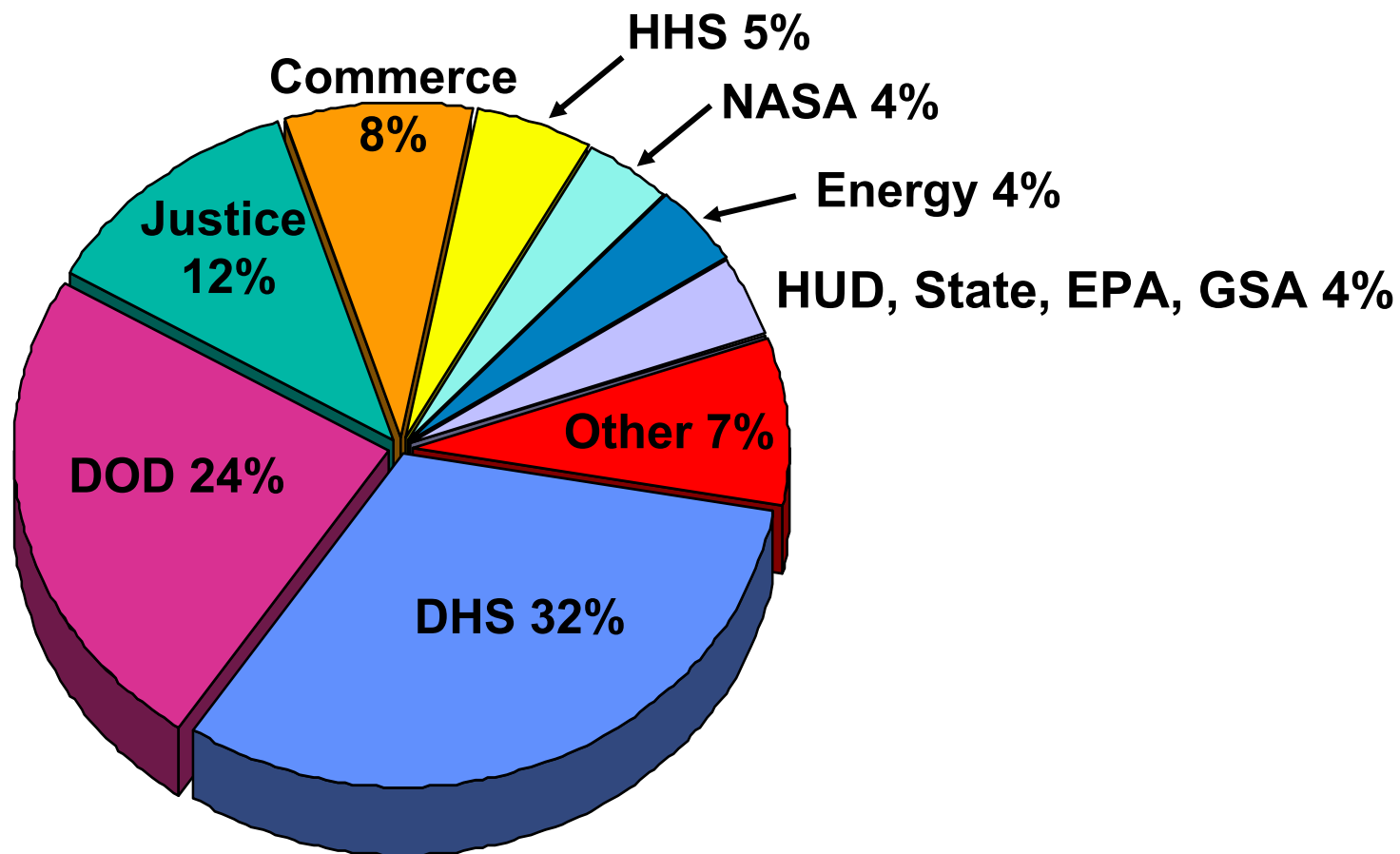
**\*All numbers are rounded**

**\*\*Estimated**

**Congressionally Directed Grants Excluded.**

# Funding From Other Federal Agencies

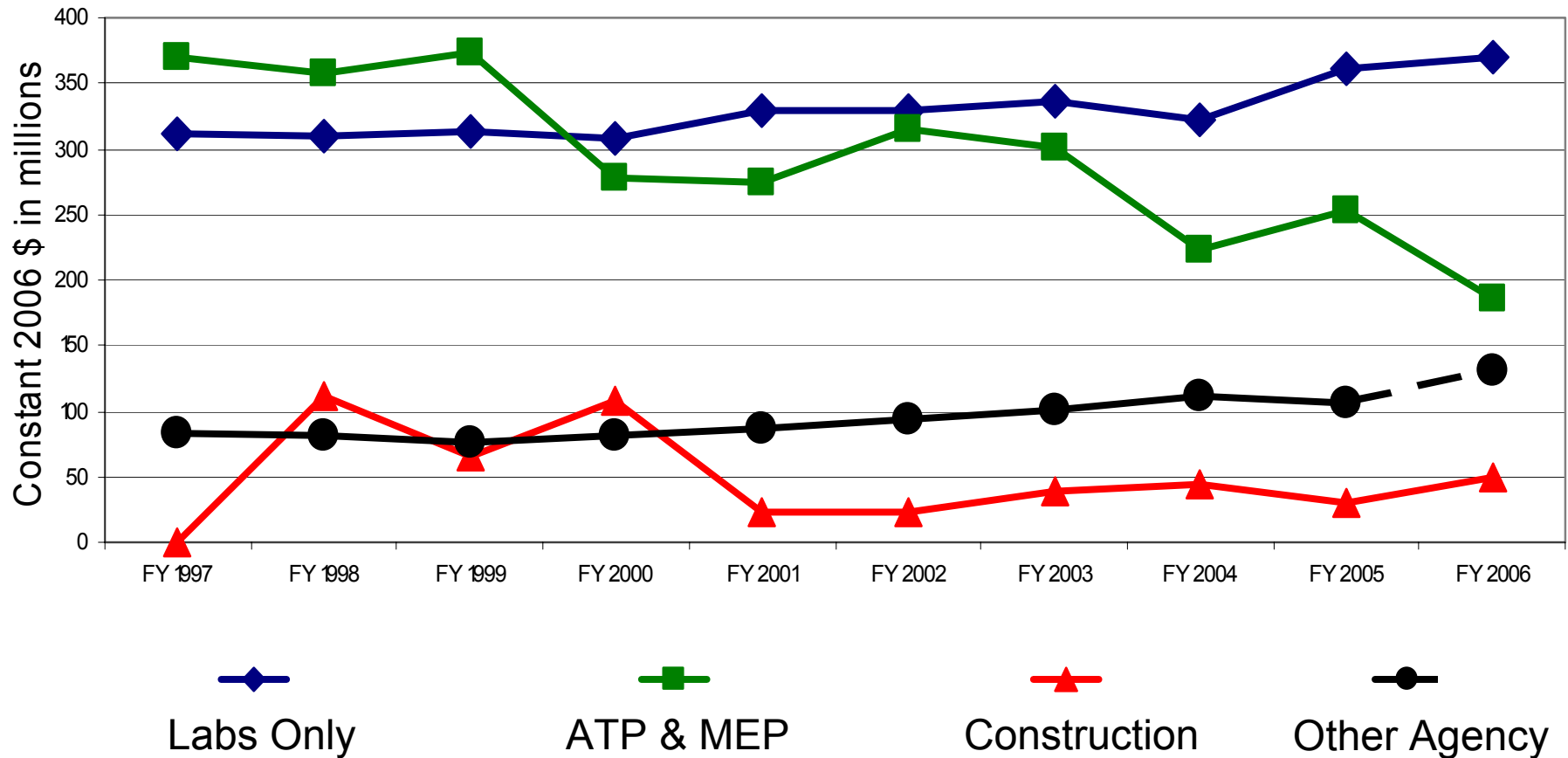
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Total = \$130.4 Million

Fiscal Year 2006 Estimate

# Trends in NIST Funding



No Congressionally Directed Funds included

# **Role of VCAT ... Where are we now?**

- Just covered one item... just the data not the strategy
- 75 recommendations in two years
  - Many are ongoing
  - Many have been requested for routine (quarterly) briefings
- Approach we created masks the key issues and input



# **New VCAT Focus on High-Level Topics**

*"Each report shall identify areas of... potential importance to the long-term competitiveness of United States industry in which the Institute possesses special competence..."*

Omnibus Trade & Competitiveness Act  
(NIST VCAT authorization)

- Focus meetings on the most important topics
  - Enable more dialog between VCAT and NIST on these specific areas
- Rely on other forms of communication for more routine matters
  - Technical accomplishments, awards, etc.

# Example High-Level Topics

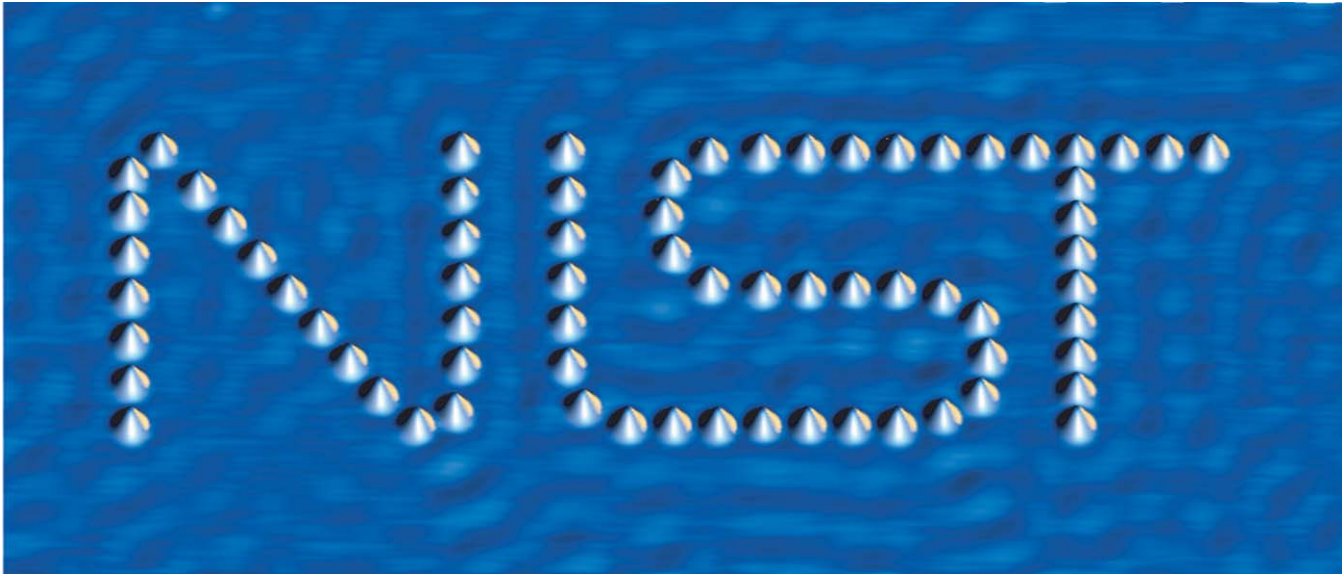
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- Prioritizing NIST programs
  - among a plethora of choices and drivers
- Science & technology performance metrics
  - impact on the economy and public good
- Strategic relationships
  - programmatic: university, other agency, industry, etc.
- Outreach
  - high-level officials: CEO, university presidents, other agency heads, etc.
- NIST's role in the international arena

# New VCAT Meeting Format

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- Day 1
  - NIST presentations with specific issues for VCAT
  - Lab tours
- Day 2
  - VCAT presentations/guidance to SMB in open session
- More open and complete recording of VCAT ideas
  - Eliminate consensus and letter reports
  - All VCAT member input documented in meeting minutes for the benefit of NIST management
  - More like other federal advisory committees



**Thanks to our VCAT Partners**